COMPREHENSIVE MANUAL

The MERLIN instruction manual assumes no knowledge of electronic calculators. It includes examples, exercises, practical tips, list of radio time signals, altitude corrections, and the precision coordinates of 59 stars to the year 2000.

Appendices set out the principles of celestial navigation, explain the determination of latitude and longitude by noon sights, provide an emergency perpetual almanac of the sun, and discuss theodolite observation procedures.

The manual also sets out the programs for functions 1:, 3: and 4:. This permits any Sharp EL-512 or EL-522 to be converted into a star computer operating exactly like MERLIN.

MERLIN SPECIFICATIONS

Sharp EL-512 scientific calculator programmed for celestial navigation.

10 memories; 61 standard functions; 12 significant figures.

4 navigation functions:
- 1: preliminary/star almanac
- 2: sun almanac
- 3: azimuth
- 4: intercept/comp. altitude

Almanacs: perpetual type (no coefficients), valid till early 21st Century, accuracy better than 0.5.

Reduction: spherical trigonometry. (Surveyor's azimuth by hour angle.)

Approx. electronic computing times:

sunsight	18 seconds
starsight	10 seconds
moon/planet	8 seconds (reduction only)

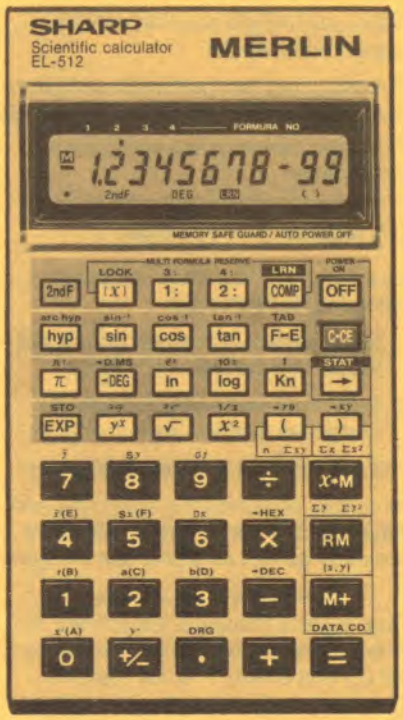
Batteries: Alkaline manganese camera type, life: 1000 hours calculating. Automatic switch off. Batteries replaceable without loss of functions.

MERIDIAN SURVEY SERVICES
P.O. BOX 1264 BOORAGOON
WA 6154 AUSTRALIA
PH. (09) 330 2402

MERLIN

MERLIN

ASTROCOMPUTER



A celestial navigation computer of extraordinary power and simplicity

Navigators Astronomers Surveyors

MERLIN *The celestial computation wizard*

In a marvel of compactness, a general purpose calculator, the Sharp model EL-512, has been converted into a celestial navigation computer of exceptional efficiency ...

- Built-in perpetual sun and star almanacs.
- Rigorous triangle solution entirely supersedes tables.
- Pressing just four buttons transforms observations into position line. In seconds.
- Low cost makes spare computers practicable.

SO SIMPLE TO USE...

For example, to compute a sunsight switch MERLIN on then:

— Store latitude, longitude and day of month in memories (1), (2), (3)

— Enter time and corrected altitude and press function keys 1: 2: 3: 4:

That's it. Azimuth and intercept show.

For further observations enter time and altitude and press 1: 2: 3: 4:. *MERLIN computes as fast as sights can be taken.*

A star sight is the same except that the co-ordinates are held in memories (4) and (5) and button 2: is not pressed.

MERLIN accepts DR (or any) position. It indicates which way the intercept goes. The MERLIN almanacs do not require a series of numbers to be entered every month or fortnight. One number only is stored once a month.

The outcome of over two year's effort and more than 20 000 miles of ocean testing, MERLIN was developed in Australia and has been selling there since January 1985. MERLIN is possibly the most practical and straightforward position line computation ever. It may now be found on every ocean as well as in deserts, jungles and arctic regions.

VERSATILE, PRACTICAL ...

- Observations are processed to answers without concern for intermediate values.
- Intermediate values are available for learning purposes.
- Answers are quite final: no 360's to add, no rules to apply.
- Numbers remain in memories to be checked, changed, or re-used at will. Nothing is entered twice.
- MERLIN predicts stars.
- MERLIN identifies stars.
- MERLIN computes great circles.
- MERLIN reduces moon and planet sights if Almanac available.
- Sophisticated mathematical functions of the EL-512 are not affected.
- Twelve month warranty.
- Batteries last for years.

... UNIVERSAL

The traditional navigator will find that MERLIN eliminates the whole sight reduction ritual. With MERLIN celestial navigation becomes handy for coastal sailing. The precision of the observations can be assessed with a confidence unmatched by tabular methods.

The beginner will find MERLIN to be swift and direct. Press a few buttons then plot position. Anywhere on Earth. Moreover MERLIN'S identification and prediction facilities along with its DIY back-up options make it a total celestial navigation package.

To the *astronomer* MERLIN is an automatic orientation, prediction and identification device.

To the *surveyor* MERLIN is an "instant azimuth" machine.